REMARKS

Claims 1-15 were previously canceled and claim 17 is canceled herein. Claims 16, 18, 21, 22, and 24 are amended herein. No new claims have been added. Accordingly, claims 16, and 18-25 remain under prosecution in this application.

Claim Objections

Claims 16, and 21-25 are rejected due to the following informalities. Claims 16 and 22 use the phrase "a magnet disposed about a sensor unit." The Examiner objected to this language because it was unclear to the Examiner "where said magnet is mounted." Both claims 16 and 22 have been amended to clearly state that the magnet is "included" with an associated structure. Specifically, claim 16 has been amended to read, in part, ". . . wherein said first housing includes a magneto-electric converter element and a magnet. . ." Claim 22, includes, in part, ". . . a sensor unit, including a magnet, that is magnetically coupled to a magnet encoder. . ."

The Examiner has objected to claims 21, 23, and 25 inasmuch as the Examiner does not believe that a sinusoidal signal current is clearly defined and how "speed" and "air gap" are determined from such current. Claim 21 has been amended to now specifically point out that the wheel speed information and dynamic air gap deformation are encoded into a frequency and an amplitude respectively, of a sinusoidal signal current generated by said electronic signal processing circuit.

In claim 24, the Examiner stated that "it is unclear as to what the phase relationship is; the phase relation of what?" The phrase "phase relation" in claim 24 has been replaced with --a torsion of said sidewall--. The phase relation referred to in claim 24 is the phase relation of various points along a tire sidewall. By measuring the phase relationship between various portions of a tire sidewall, the sidewall torsion experienced by a tire sidewall can be determined.

35 USC § 103

Claims 16-25 are rejected under 35 USC § 103 as being unpatentable over Loreck et al in view of Lohberg. Claim 16 has been amended to specifically incorporate "only a magneto-electric converter element" in the first housing wherein the first housing and the second housing are coupled to each other by way of a four-pole electric connection. None of the references of record teach or suggest this arrangement structure. Lohberg is totally absent of any teaching relating to the internal structure of the disclosed sensor. Loreck et al does teach various internal arrangements for structuring a sensor module (1) however, claim 16 requires that a first housing includes "only a magneto-electric converter element" and Loreck does not teach this claimed structure. Specifically, the first housing 12 (function unit 12) as shown in Figure 4A of Loreck shows that it contains both the sensor units 2.1 to 2.4 (as shown in Figs. 2a-2d) which are used to scan an encoder 3, and each sensor units respectively associated signal-conditioning circuit SC1 to SC4. See column 4, lines 47 et seq of Loreck. In short, Loreck teaches embedding both the sensor (2.1-2.4) and its respectively associated signal conditioning circuit SC1 to SC4 in the function unit 12 (first housing) which is in contrast to claim 16 which requires that the sensor, and only the sensor, (i.e. magneto-electric converter element) be contained within the first housing. One important functional advantage of the sensor circuit set out in claim 16 over that taught by Loreck is that in the Loreck sensor, the signal conditioning circuitry is in close proximity to the magnetic sensor and is potentially susceptible to electro-magnetic interference generated by the magnetized encoder track embedded in the sidewall of the wheel. In contrast, the sensor circuit set out in claim 16, specifically separates the signal processing circuit from the magneto-electric converter element and, accordingly, there is a greater isolation and less of an opportunity for electromagnetic interference to be generated within the electrical components of the electronic signal processing circuit. For this reason alone, the undersigned believes that claim 16 and its dependent claims are now in condition for allowance.

Amended claim 22 specifically requires, amongst other things, that the interaction between the magnet, magnetic encoder, sensor unit and the signal processing circuit, results in the signal processing circuit generating a sinusoidal signal current provided to a control device of a brake system, wherein a frequency of the sinusoidal signal is indicative of wheel speed, and wherein an amplitude of the sinusoidal signal is indicative of dynamic deformation of an air gap

between the sensor unit and the magnetic encoder. None of the references of record teach or suggest the structure set out in claim 22 that gives rise to the claimed sinusoidal signal and accordingly, the undersigned believes that claim 22 and its dependent claim (claim 23), are now in condition for allowance.

Claim 24, requires, amongst other things, a sensor circuit comprising a magnet, a sensor, and a signal processing circuit, wherein the relation between a sensor and a signal processing circuit results in the signal processing circuit generating a sinusoidal current signal and sending the signal to a regulating unit of a brake system, wherein the sinusoidal current signal is encoded with information relating to a torsion of said magnetized tire sidewall, wheel speed, and dynamic deformation of an air gap between the sensor unit and the magnetic encoder. None of the references of record teach or suggest the above claimed circuit and its resulting sinusoidal current signal. Accordingly, the undersigned believes that claim 24 and its dependent claim (claim 25) are now in condition for allowance.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

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